GIMEL'SHTEYN, Leonid Yakovlevich; BOZHANOVA, Galina Ivanovna; ISTOMIN, P.S., otv.red.; ASTAKHOV, A.V., red.izd-va; KOROVENKOVA, Z.A., tekhn.red.

[Handbook for the mechanic of a coal mine section] Spravochnik mekhanika uchastka shakhty. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1959. 298 p. (MIRA 13:2)

(Coal mining machinery)

ISTOMIN, S., kand.ist.nauk

Lenin's party as organizer and supervisor of Soviet trade unions. Sov.profsoiuzy 7 no.20:9-13 O '59. (MIRA 12:12)
(Trade unions) (Communist Party of the Soviet union)

ISTOMIN, S.A., aspirant

Studies on calculating girderless ceilings. Nauch.dokl.vys. shkoly; stroi. no.2:71-85 '58. (MIRA 12:1)
(Ceilings)

ISTOMIN, S.A. (Kolomna)

Interaction of slabs and columns in girderless ceilings.
Stroi.mekh.i rasch.soor. 1 no.6:33-38 '59.
(MIRA 13:4)

(Columns, Concrete) (Concrete slabs)

ISTOMIN, S. A., Cand Tech Sci -- (diss) "Interaction of the capital and plate in girderless overlapping." Moscow, 1960. 12 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Order of Labor Red Banner Construction Engineering Inst im V. V. Kuybyshev); 200 copies; price not given; (KL, 22-60, 136)

ISTOMIN, S.N., inzh.

Selecting the design of a test bed for testing locomotives.
Izv.vys.ucheb.zav.; gor.zhur. no.10:100-107 '58.
(MIRA 12:8)

1. Moskovskiy gornyy institut.
(Mine railroads--Electromechanical analogies)
(Locomotives--Testing)

ISTOMIN, S. N., CAND TECH SCI, "BENCH studies OF [redacted] PROBLEMS OF UNDERGROUND LOCOMOTIVE HAULAGE." MOSCOW, 1960. (MIN OF HIGHER AND SEC SPEC ED UKSSR, KHAR'KOV MINING INST). (KL, 3-61, 216).

ISTOMIN, S.N., inzh.

Method of adapting a loading stand assembly for mine locomotive research. Izv.vys.ucheb.zav.; gor.zhur. no.2:133-136 '60. (MIRA 14:5)

1. Moskovskiy gornyy institut.
(Mine railroads) (Electric locomotives--Testing)

GORCHAKOV, Svyatoslav Petrovich; KOBZEV, Nikolay Andreyevich; ISTOMIN, S.N., otv. red.; SILINA, L.A., red. izd-va; MINSKER, L.I., tekhn. red.; LOMILINA, L.N., tekhn.red.

[Guide for the track maintenance worker] Spravochnoe posobie putevogo rabochego. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1961. 62 p. (MIRA 15:2)

(Railroads—Track)

SHARIPOV, Vakhit Sharipovich; MUZGIN, Sergey Spiridonovich; BUPEZHANOV, Mukhit Kuldzhanovich; TKACHENKO, Artem Mikhaylovich; ARTAMONOVSKIY, Oleg Yur'yevich; KULAKOV, Arkadiy Yakovlevich. Prinimali uchastiye: KAZYBEKOV, D.M.; IBRAYEV, Sh.I.; ISTOMIN, S.N., otv.red.; GEYMAN, L.M., red.izd-va; SIPYAGINA, Z.A., red.izd-va; SAL'TSOVSKIY, M.S., red.izd-va; MAKSIMOVA, V.V., tekhn. red.

[Self-propelled machines for underground workings of ore deposits] Samokhodnye mashiny dlia podzemnoi razrabotki rudnykh mestorozhdenii. By V.Sh.Sharipov i dr. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1961. 258 p. (MIRA 14:12)

(Mining machinery)

ISTOMIN, V.

Like their fathers. Voen. znan. 41 no.1:48 Ja '65.
(MIRA 18:2)

ISTOMIN, I.P.

Experimental determination of the curves of strain hardening caused by tension and compression. Trudy LPI no.250:75-79 '65. (MIRA 18:9)

L 28826-66 EWT(m)/EWA(d)/EWP(t)/ETI IJP(c) JD

ACC NR: /T6018668 SOURCE CODE: UR/2563/65/000/250/0075/0079

36
241

AUTHOR: Istomin, V. F.

ORG: none

TITLE: Experimental determination of curves of deformation hardening during extension and compression

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 250, 1965, 75-79

TOPIC TAGS: steel, strain hardening, cast steel, elongation/EI661 steel, 2Kh18N12M2T steel, ShKh15 steel, EI867 steel, 10Kh16N4B steel, 4Kh13 steel, 1Kh13 steel

ABSTRACT: Strain hardening curves during extension (tensile testing) of 4 and 5-mm diameter tensile test specimens with gage length/diameter ratio of 5 were produced using full sets of experimental points and using just two experimental points. Good correspondence of curves was noted for: steel with an ultimate strength of 215 kg/mm², tempered to a Rockwell C hardness of 54-55; EI661 steel; 2Kh18N12M2T steel; ShKh15 steel; EI867 steel; 10Kh16N4B cast steel in States I and II; forged steel 10Kh16N4B tempered to Rockwell C hardness 51-53; 4Kh13 steel; 1Kh13 steel. True stress-relative strain curves were constructed for compression of the same steels, test specimens 3 and 4mm in diameter, height/diameter ratios equal to 1.5. Compressions of 30-50% were found to be sufficient. It was discovered that only three of the ten steels tested (ShKh15, 4Kh13 and 1Kh13) had stress-strain curves for elongation and compression that could be considered similar even in the first approximation. Orig. art. has: 3 figures and 5 formulas. [JPRS]

SUB CODE: 13 / SUBM DATE: none / ORIG REF: 005

Card 1/1 CC

ISTOMIN, V.G

AUTHOR: MIRTOV, B.A., ISTOMIN, V.G. 53-1b-15/18

TITLE: The Investigation of the Ionic Composition of the Ionized Atmospheric Strata. (Issledovaniye ionnogo sostava ionizirovannykh sloyev atmosfery, Russian)

PERIODICAL: Uspekhi Fiz. Nauk, 1957, Vol 63, Nr 1b, pp 227 - 238 (U.S.S.R.)

ABSTRACT: Investigations of this kind are very important for the solution of some geophysical and astronomical problems, e.g. the sun-earth problem and for the propagation of radio waves. Before artificial satellites existed, only more or less reliable qualitative data on the composition of the ionized strata were available.

An artificial satellite and the study of the spectrum of ions in the ionosphere: An artificial satellite offers great advantages for such an investigation, for it permits manifold and almost simultaneous observations at points many thousand kilometers distant from one another. Satellites are also well suited for the investigation of the change of ion composition in the course of time. The ion composition by day and by night can also be determined. Because of the elongated elliptic shape of the orbit of the satellite the ionic composition in various altitudes above the earth can also be determined. By means of artificial satellites the most important layers of the ionosphere can be determined, namely the E-layer and the F-layer. Furthermore, the environment

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of the satellite (except quite in the beginning of its flight) is not contaminated by parasitic gases.

Some general problems connected with the experiment: The speed of the satellite is by one magnitude greater than the gaskinetic speed of the molecules of the medium surrounding it. This presents very great difficulties to be overcome by the investigator. Above all it has to be determined whether the apparatus placed in the satellite measures true or the fictive ionization. According to the author the ionization caused by the satellite in its environment can be neglected. The high vacuum developing behind the satellite due to its high speed also presents difficulties.

Instruments for the direct study of ionic composition of the upper atmosphere: The mass spectroscopic method is apparently best suited for this purpose. But the "magnetic" mass spectrometers are only little suited for operation on a satellite. But there exists quite a number of mass spectrometers suitable for this purpose, e.g. the radar-frequency mass spectrometer.

The BENNETT type radar-frequency mass spectrometer works according to the principle of the separation of ions according to their speed. The chief element of this instrument is a mass-spectroscopic

tube consisting of a specially constructed electrovacuum tube with four plane-parallel lattices. This equipment is discussed in detail.

Some special problems arising when carrying out the experiment: A first experimental difficulty is caused by the self-charge acquired by the rocket in the ionosphere. A possible negative charging of the rocket or the satellite causes a change in the manner of operation of the mass spectrometric apparatus. The data hitherto obtained by rockets speak for the expediency of using such mass-spectrometric apparatus in artificial earth satellites. If the orbits are suitably chosen, data concerning polar regions of the earth, which are accessible only with difficulties, may also be obtained. The disturbing influence of the self-charge of a satellite is again emphasized. The self-charge changes also in dependence on the flying height of the satellite, of the geographic coordinates, and on the time of day. Therefore allowance has to be made for the slowing-down potential as dependent on the charge acquired by the satellite. Certain experimental difficulties are also caused by the high speed of the satellite. In

Istomin, V. G.

29(2) p.2 PHASE I BOOK EXPLOITATION SOV/2894

Akademiya nauk SSSR

Iskusstvennyye sputniki zemli. vyp. 2: Rezul'taty nauchnykh issledovaniy, poluchennyye pri pomoshchi tret'yego isskusstvennogo sputnika zemli (Artificial Earth Satellites. No 2: Results of Scientific Studies Obtained by the Third Earth Satellite) Moscow, Izd-vo AN SSSR, 1958. 82 p. 3,500 copies printed.

Ed.: L. V. Kurnosova; Ed. of Publishing House: D. M. Alekseyev; Tech. Ed.: Yu. V. Rylina.

PURPOSE: This work is intended for geophysicists, meteorologists, and other scientific and technical personnel engaged in space exploration and research.

COVERAGE: This collection of articles contains certain of the scientific findings recorded by the third Soviet space satellite. Much corroborating data from other rocket and satellite investigations are included. The articles are based on papers originally read at the Fifth Assembly of the

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of the Special IGY Committee held in Moscow in August, 1958. Individual articles discuss the ionic composition and density of the atmosphere, the thermodynamic parameters of the stratosphere, and questions dealing with the motion of the satellite. References accompany each article.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

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SOV/120-58-2-33/37

AUTHOR: Istomin, V. G.

TITLE: Nets for Radio Frequency Mass Spectrometers (Setki dlya radiochastotnogo mass-spektrometra)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 2, p 111 (USSR)

ABSTRACT: A model of a 7-5 cycle radio frequency mass spectrometer of the Bennett type has been prepared at the Institute of Applied Geophysics of the Academy of Sciences of the USSR. In this model spectrometer, instead of the knitted wire nets used by Bennett (Ref.1), single row tungsten nets were employed. The nets were prepared by winding tungsten wires 18 μ in diameter on a specially prepared frame. The frame had special polished rings attached to it. The nets had a working diameter of 35 mm, the pitch of the winding being 0.5 mm and the open area 96%. The nets were built in in such a way that the windings of each net were at right angles to the windings of the following net. The resolution of the laboratory model of the 7-5 cycle mass spectrometer

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Nets for Radio Frequency Mass Spectrometers.

with single row nets was found to be equal to that of the instrument described by Townsend in Ref.3. Fig.1 shows a spectrum of the residual gas containing some neon which was obtained with the mass spectrometer. The masses 27, 28 and 29 are fully resolved. The resolving power for the mass 28 is equal to about 28. Thus the application of single row nets improves, to some extent, the resolving power. At the same time the preparation of such nets is much simpler compared with the knitted wire nets used by Bennett. There are 1 figure and 3 English references.

ASSOCIATION: Institut prikladnoy geofiziki AN SSSR (Institute of Applied Geophysics of the Academy of Sciences of the USSR)

SUBMITTED: August 10, 1957.

1. Radiofrequency spectrum analyzers--Equipment
2. Mass spectrum analyzers--Equipment
3. Spectrum analyzers--Performance

ISTOMIN, V.G.

Radio-frequency mass spectrometer for studying ion composition of the upper atmosphere. Isk. sput. zem. no.3:98-112 '59.
(MIRA 12:12)
(Mass spectrometry) (Ionospheric research) (Artificial satellites)

66476

~~3(7)~~ 3.9000, 9.9100 SOV/20-129-1-22/64

AUTHOR: Istomin, V. G.

TITLE: Mass-spectrometric Measurements of the Ionic Composition of the Upper Atmosphere by Means of the Third Artificial Earth Satellite

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1, pp 81 - 84 (USSR)

ABSTRACT: The mass spectrum of the positive ions in the ionosphere was investigated by means of a radio-frequency mass-spectrometer of the Bennet-type mounted into the third Sputnik. About 15000 mass spectra were recorded in heights of 225 to 980 km from May 15 to 25, 1958. These measurements were made in latitude 27° - 65° N. Especially the spectra of the ions in the atmosphere, illuminated by the sun, were recorded (7 to 11 o'clock Moscow time). Besides the intrinsic mass spectra also harmonic (wrong) mass spectra occurred. On account of the velocity and the negative charge of the satellite, all ionospheric peaks were shifted towards lighter masses in the mass scale of the apparatus. The large number of peaks and the

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Mass-spectrometric Measurements of the Ionic Composition of the Upper Atmosphere by Means of the Third Artificial Earth Satellite

low resolving power are striking, specially in the range of large mass numbers. The main difficulty was to separate the intrinsic mass peaks from the harmonic (wrong) peaks. The necessary corrections for the velocity and the negative charge of the satellite are shortly described. In all spectra, the peak with the mass number ≈ 16 preponderated with respect to the intensity. This peak has to be ascribed to the atomic O^+ ions. The second, most intensive peak of the light elements belongs to the mass number ≈ 14 and refers naturally to the N^+ ions of atomic nitrogen. A weak peak with the mass number 18 is ascribed to $(O^{18})^+$ ions. In the spectra, recorded in the range of the perihelion, a group of heavy peaks with the mass numbers 32, 30, and 28 are distinctly observed. The most intensive of them is the peak with the mass number 30, which is to be ascribed to the ions of carbon oxide (NO^+). The peaks with the mass numbers 28 and 32 are to be ascribed to $(N_2)^+$ and $(O_2)^+$ ions. The other peaks are harmonic (wrong) peaks. It is convenient to compare the intensities of all peaks with the intensity of the peak of O^+. The intensity of the peak of atomic nitrogen with respect to the peak of atomic oxygen, amounts, according to height and

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Mass-spectrometric Measurements of the Ionic Composition SOV/20-129-1-22/64
of the Upper Atmosphere by Means of the Third Artificial Earth Satellite

latitude, to 1.3 - 8-10%. The points, corresponding to a loop of the satellite path, fit, apart from small errors, a closed curve. The third diagram illustrates the dependence on the latitude of the ratio of the ion currents of atomic nitrogen and atomic oxygen . Thus, the relative ionic concentration of atomic nitrogen increases significantly on the transition from the range of latitude 30-50°N to the latitude 55°-65°N in heights of 225-250 km and 251-350 km. In heights of 351-450 km no dependence on latitude was noticed. In higher heights, the relative concentration of the ions of atomic nitrogen depends even less or not at all, on the latitude. The dependence of the relative concentration of heavy molecular ions of oxygen, nitrogen and nitrogen oxide on the heights exhibits a similar character. The author thanks the director of the laboratory B. A. Mirtov for his enduring interest in the present paper and for discussion of the results as well as S. V. Vasyukov, A. A. Perno and R. P. Shirshov for their great assistance in the evaluation of the experimental material. There are 4 figures and 3 Soviet references.

ASSOCIATION: Institut prikladnoy geofiziki Akademii nauk SSSR (Institute of Applied Geophysics of the Academy of Sciences, USSR)

PRESENTED: July 15, 1959, by A. A. Blagonravov, Academician
SUBMITTED: July 9, 1959

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ISTOMIN, V.G.

PHASE I BOOK EXPLOITATION SOV/4281

Akademiya nauk SSSR

Iskusstvennyye sputniki Zemli, vyp. 4 (Artificial Earth Satellites, No. 4) Moscow, 1960. 285 p. Errata slip inserted. 6,500 copies printed.

Resp. Ed.: L.V. Kurnosova; Ed. of Publishing House: M.I. Fradkin; Tech. Ed.: T.P. Polenova.

PURPOSE: This collection of articles is intended to disseminate data collected in investigations performed by means of artificial earth satellites.

COVERAGE: The collection consists of 15 articles dealing with scientific data on Soviet artificial earth satellites (AES) and cosmic rockets. The topics discussed include measurements of the density of the upper atmosphere, motion of AES, measurements of micrometeorites and meteoric matter, magnetometric measurements of cosmic rays, electrical potential, and spectrum of positive ions. The collection is part of a series published regularly. References follow each article.

Artificial Earth Satellites, No. 4 SOV/4281

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ISTOMIN, V. G., POLOSKOV, S. M., and DANILOV, A. D.

"Results of Research into the Ionosphere's Composition with the Help of Rockets and Sputniks, and Explanation of Physical Processes which Determine the Composition of the Static Ionosphere,"

Report presented at the Commission on Space Research, 2nd Intl. Symposium and Plenary Meeting, 7-18 April 1961, Florence Italy.

ISTOMIN, V. G., Cand. Phys-Math. Sci. (diss) "Mass-Spectrometric Investigations of Composition of Ionosphere of Earth." Moscow, 1961, 16 pp. (Acad. of Sci. USSR, Institute of Applied Physics) 200 copies (KL Supp 12-61, 251).

25991
S/560/61/000/006/009/010
E032/E114

9,9100

AUTHOR: Istomin, V.G.

TITLE: Variation of positive ion concentration with altitude according to mass spectrometric measurements with the third satellite

PERIODICAL: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli. No. 6, Moscow, 1961. pp. 127-131

TEXT: The present paper is a continuation of previous reports by the present author (Ref.1: Dokl. AN SSSR, V.129, 81, 1959: Ref.2: present journal, No.4, izd-vo AN SSSR, 1960, p.171). Analysis of spectra reported in Refs. 1 and 2 shows that the potential of the satellite was of the order of -3v and remained roughly constant. The potential was estimated from the shift of the mass peaks in the mass spectra; variations in the potential were estimated from changes in the intensity of "harmonic" peaks. The orientation of the mass spectrometer tube relative to the velocity vector was determined from the magnetometric data of V.V. Beletskiy and Yu.V. Zonov (Ref.4: present journal, No.7, izd-vo AN SSSR). Fig.1 shows the intensity of the O^+ peak as a function

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Variation of positive ion .....

of the altitude of the satellite (km). The curve marked 1 shows the electron concentration as reported by Ya.L. Al'tsert, F.F. Dobryakova, E.F. Chudesenko and B.S. Shapiro (Ref.5: UFN, 65, 161, 1958); curve 2 shows the electron concentration as reported by L. Klinker, K. Knut and K.H. Schmelovsky (Ref.6: Zs. Meteor, V.13, 192, 1959); and curve 3 shows the positive ion concentration according to measurements with the third artificial earth satellite on May 19 (Ref.7: K.I. Gringauz, V.V. Bezrukikh, V.D. Ozerov, present issue, p.63). Points marked a, б, в, г refer to May 18, 19, 21 and 23 respectively. Above 300 km the positive ions are largely oxygen ions (90%) so that the points shown in Fig.1 indicate the altitude behaviour of the positive ions with mass numbers between 14 and 32 amu. Inspection of Fig.1 will show that up to 550 km the positive ion concentration varies in the same way as the electron concentration. Above 650 km the mass spectrometric measurements show a considerable spread from day to day. The ion trap data (Ref.7) represented by curve 3 are in good agreement with the present results.

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Variation of positive ion concentration...

Acknowledgments are expressed to B.A. Mirtov and K.I. Gringauz for interest and discussions, and to V.V. Beletskiy and Yu.V. Zonov for supplying data on the orientation of the satellite.
There are 1 figure, 1 table and 7 references: 6 Soviet and 1 non-Soviet.

SUBMITTED: April 15, 1960

Card 3/3

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3,5120 11.1530

26662
S/560/61/000/007/006/010
E032/E514

AUTHOR: Istomin, V. G.

TITLE: Studies of the ionic composition of the Earth's atmosphere during 1957-1959 using geophysical rockets

PERIODICAL: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli, No.7, Moscow, 1961, pp.64-77

TEXT: The present paper reports mass spectroscopic data on the positive ion spectrum in the range 90 to 210 km above the Earth's surface. These data were obtained in four experiments carried out during 1957-1959. The experimental method employed was described by B. A. Mirtov, V. V. Mikhnevich and I.A.Khvostnikov (Ref.1: UFN, 53, No.1, 181, 1957; Ibid 197; Izv. AN SSSR, seriya geofiz., No.11, 1393, 1957). The measurements were carried out at middle latitudes of the European part of the USSR. A Bennett type mass spectrometer was used in the 1957-1958 experiments (the Russian version of this spectrometer is designated as РМС-1 (RMS-1)). The RMS-1 spectrometer was described by the present author in Ref.3 (Iskusstvennyye sputniki Zemli, No.3, izd-vo AN SSSR, 1959, p.98). The spectrometer used during 1959 was the

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MX-6401 (MKh-6401) radio-frequency mass spectrometer which was described by V. A. Pavlenko, A. E. Rafal'son, M.Ye. Slutskiy, G. A. Tsveyman and M. D. Shutov (Ref.4: Pribory i tekhnika eksperimenta, No.6, 89, 1960). The resolution of both spectrometers was about 20. The most recent experiment was that of July 22, 1959. The rocket was launched in the early hours of the morning (sun at 0 deg); an instrument designed to determine the neutral components of the ionosphere was also included in the payload. The ion mass spectrometer functioned correctly throughout the entire flight. 112 spectra were obtained between about 90 and 211 km above the Earth's surface. Positive ions with the following mass numbers were recorded:

16 - atomic oxygen (O^+), ionospheric component,
18 - water (H_2O^+), ionospheric component or contamination (container),
19 - unidentified, contamination (rocket),
30 - nitric oxide (NO^+), ionospheric component,
31 - unidentified, contamination (rocket),
32 - molecular oxygen (O_2^+), ionospheric component,
45 - unidentified, contamination (rocket),
47 - unidentified, contamination (rocket).

During the free flight the container was not oriented in any special way and the rotation of the container gave rise to a "modulation" of the spectra with a period of about 30 sec. Fig.6 shows the variation in the intensity of the O_2^+ peak relative to the NO^+ peak for July 22, 1959. The points refer to the ascent and the crosses to the descent. Fig.7 shows the intensity of the O^+ peak relative to the NO^+ peak (July 22, 1959). From detailed analysis of the results it is concluded that the data obtained on the ascending part of the trajectory give the best representation of the ionic composition of the free atmosphere and its variation with height. No peaks were obtained in the mass number range 1-4 amu. It is therefore concluded that the concentration of H^+, H_2^+ and He^+ between 100 and 210 km does not exceed 1% of the total positive ion concentration in the atmosphere. The variation in the ionic concentration with height for July 22, 1959 is also illustrated in Fig.8, which was obtained by combining Figs. 6 and 7 for the ascending part of the trajectory. This diagram shows the variation in the ratio between the three principal components of the ionosphere (O_2^+, NO^+ and O^+). The curves drawn in this

diagram divide it into three regions. The length of the straight line sections, drawn parallel to the horizontal axis which lie in the three regions, is proportional to the measured intensities of the corresponding components and approximately represent their relative concentrations. The corresponding diagram for the 1957-1958 experiments are shown in Fig.9 (a - September 9, 1957, evening, sun at 6 deg; b - August 2, 1958, morning, sun at 36 deg; c - August 13, 1958, morning, sun at 0 deg). All the four experiments were carried out during the summer months and at the same locality. Fig.10 shows the variation in the composition of the ionosphere with height and time. Fig.11 shows a comparison between the rocket and the third Soviet satellite data. The rocket experiment was carried out on August 13, 1958 (daytime, 150-200 km). The satellite data referred to May 15-25, 1958 (daytime, 225-700 km; V. G. Istomin (Ref.13: Dokl.AN SSSR, 129, 81, 1959; Iskusstvennyye sputniki Zemli, No.4, izd-vo AN SSSR, 1960, p.171)). As can be seen, points representing satellite measurements are natural continuations of the rocket results for the case where the sun was at 36 deg. This suggests that the

satellite experiment produced the composition of the undisturbed ionosphere and all the possible disturbing effects due to the larger velocity of the satellite were, as was expected, unimportant. The large number of ions due to the various contaminations were easily distinguishable. It is argued that the ionization of the gas emitted from the surface of the projectile was due to a charge transfer process involving atmospheric ions. B. A. Mirtov, Director of the laboratory, is thanked for his help, R.P.Shirshov, L. P. Chulkin and A. A. Perno made major contributions to this project. The 1958 measurements were carried out with the assistance of A. A. Pokhunkov. S. V. Vasyukov helped with the measurements and with the interpretation. There are 11 figures and 14 references: 11 Soviet and 3 non-Soviet. The English-language references are as follows: W. H. Bennett. J.Appl. Phys., 21, 143, 1950; C. Y. Johnson and J. C. Holmes. Astronautics, 4, No.7, 30, 1959; C. Y. Johnson, J.P. Heppner, J.C. Holmes and E. B. Meadows. Ann. de Geophys., 14, 475, 1958.

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3,5131
9,6150

37205

S/560/61/000/011/011/012
E032/E514

AUTHOR: ~~Istomin, V.G.~~

TITLE: Absolute concentrations of ion components of the Earth's atmosphere at altitudes between 100 and 200 km

SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli. no.11. Moscow, 1961. Rezul'taty nauchnykh issledovaniy, provedennykh vo vremya poletov vtorogo i tret'yego kosmicheskikh korabley-sputnikov, 94-97

TEXT: The rocket launched on June 15, 1960 in the "middle latitudes of the European part of the USSR" carried (in a separate container) a radio-frequency mass spectrometer of type MX-6403 (MKh-6403). This instrument differed from similar devices described by the author in Ref.6 (Iskusstvennyye sputniki Zemli, No.3, Izd-vo AN SSSR, 1959, p.98) and V. A. Pavlenko, A. E. Rafal'son et al. (Ref.7: Pribory i tekhnika eksperimenta, No.6, 89, 1960) by higher sensitivity and somewhat smaller dimensions and weight. The mass ranges of the device were 1-4 and 10-56 amu. The sensitivity was such that ion components present in small concentrations could be detected in addition to

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NO^+, O_2^+ and O^+. Some of the results were previously published by the author (Ref.8: Dokl.AN SSSR, 136, 1066, 1961; Ref.9: Iskusstvennyye sputniki Zemli, this issue, p.98, Ref.10; Dokl.AN SSSR, 137, 1102, 1961). The present paper reports absolute concentrations of ions with the following mass number: 14(N^+), 16(O^+), 28 (N_2^+ and possibly Si^+ at 100 to 120 km), 30(NO^+) and 32 (O_2^+). In addition, ions with mass number 11(B^+) and 12(C^+) were recorded on June 15, 1960; their concentration at 200 km was, respectively, 3000 and 300 cm^{-3} approximately. Tables are reproduced giving the absolute concentrations of these and other ions as functions of altitude. It is noted that the concentration of ions with mass number 18(H_2O^+) at 200 km on June 15, 1960 was roughly 20000 cm^{-3}, while the result obtained with a rocket on June 2, 1959 at this height was 3000 cm^{-3}. It is stated that these ions have not as yet been reliably identified with atmospheric components. These results are said to be of interest in connection with the detection of ions with mass number 18 by C. Y. Johnson et al. (Ref.1: Ann.geophys.,14,475,1958; Ref.2: Space Research v.1, Ed.H.Kalman, Amsterdam, 1960, p.417; Ref.3:

Absolute concentrations of ion ... S/560/61/000/011/011/012
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Ann. geophys., 17, 100, 1961). There are 3 tables.

SUBMITTED: June 17, 1961

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S/560/61/000/011/012/012
E032/E514

9.6150
8.5131

AUTHOR: Istomin, V.G.

TITLE: Ions of extra-terrestrial origin in the Earth's atmosphere

SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli. no.11. Moscow, 1961. Rezul'taty nauchnykh issledovaniy, provedennykh vo vremya poletov vtorogo i tret'yego kosmicheskikh korabley-sputnikov, 98-107

TEXT: This is a more complete account of the results originally published by the author in a previous paper (Ref.6: *Dokl. AN SSSR, 136, 1066, 1961). The ion mass spectra were obtained using the radio-frequency mass spectrometer described by the present author (Ref.7: Iskusstvennyye sputniki Zemli, No.3. Izd-vo AN SSSR, 1959, p.98) and by V. A. Pavlenko, A. E. Rafal'son et al. (Ref.8: Pribory i tekhnika eksperimenta, No.6, 89, 1960). A detailed discussion is given of the mass spectra obtained at different altitudes with a rocket launched on June 2, 1960 to heights of 100 to 200 km. Fig.4 shows the concentration of magnesium ions as a function of height

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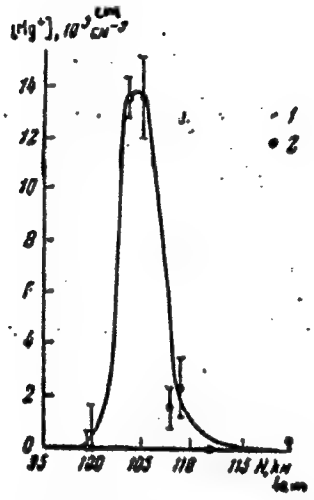
* S/020/61/136/005/013/032 † S/120/60/000/006/023/045

(points - ascending part of the trajectory, open circles - descending part). Fe^{+} ions (M = 56) were also detected and their density at 101 km is estimated as 1500 cm^{-3}. Furthermore, the ratio of the concentrations of magnesium and calcium ions was found to be 35 ± 8, which is rather close to the corresponding ratio for meteorites as reported by B. Yu. Levin, S. V. Kozlovskaya and A. G. Starkova (Ref.19: Meteoritika, No.14, 38, 1956). The general conclusion is that these results confirm M. Nicolet's hypothesis (Ref.22: Meteors. Pergamon Press. London, 1955, p.99) that meteors play an important part in the night ionization of the E-region. There is an excellent spatial correlation between the ions and the night position of the E-layer, as determined from radio observations, and the ion concentrations of metals are of the same order of magnitude as the night values of the electron concentration in the E-region. This method may be useful in the determination of the chemical composition of meteors which do not reach the Earth's surface. There are 6 figures and 1 table.

SUBMITTED: June 17, 1961

Ions of extra-terrestrial ... S/560/61/000/011/012/012
E032/E514

Fig.4



Card 3/3

ISTOMIN, V.G.

Mass spectrometric measurements of the gas composition of the earth's atmosphere from rockets and satellites. Geomag. i aer. 1 no.3:359-368 My-Je '61. (MIRA 14:9)

1. Institut prikladnoy geofiziki AN SSSR.
(Atmosphere, Upper—Rocket observations)
(Mass spectrometry)

20355

S/020/61/136/005/013/032
B104/B204

3,2300

AUTHOR: Istomin, V. G.

TITLE: Magnesium and calcium ions in the upper atmosphere of the Earth

PERIODICAL: Doklady Akademii nauk SSSR, v. 136, no. 5, 1961, 1066-1068

TEXT: By means of a geophysical rocket, which was launched on June 15, 1960 in the European part of the USSR, apart from NO^+ and O_2^+ ions, also Mg^+ and Ca^+ ions were found by means of an ion-radiofrequency mass spectrometer. The mass spectrometer was located in a separable container and permits carrying out measurements in a region of the atmosphere which is not polluted by the rocket. At altitudes of from 92 to 96 km, more than 100 spectra were recorded, five of which had peaks with the mass numbers 24 and 26. Four of these five spectra were obtained on the ascending branch of the trajectory, 2 on the descending branch of the same trajectory; the corresponding altitudes were between 103.5 and 105 km. Both mass numbers belong to magnesium isotopes, and the ratio peak/amplitudes is $i_{24}/i_{26} = 7$.

Card 1/3

Magnesium and calcium ions...

The corresponding values are given in Table 1. In the spectrum, which was recorded at the time T = 123 seconds after launching (cf. table), a peak was found with M = 40, which is ascribed to the existence of Ca^+ ions. This is confirmed by the existence of lines of ionized Ca II ions in the spectra of the evening sky glow. For the concentration ratio one obtains $n_{Mg^+}/n_{Ca^+} = 25 \pm 8$, $n_{Ca^+} \simeq 540$ cm^{-3}, the total number over the entire thickness of the layer per unit area is $N_{Ca^+} \simeq 3 \cdot 10^8$ cm^{-2}. These results agree well with those obtained by Valance Jones (Ref. 3: A. Valance Jones, Ann. Geophys. 14, no. 2, 179 (1958)). The causes of the occurrence of Mg and Ca ions in these regions is discussed, and a meteor hypothesis is set up. The author thanks M. Ye. Slutskiy for his help in the construction of the radiofrequency mass spectrometer, A. A. Pokhunkov for making the experiment possible, and G. N. Podsoblyayeva for her help in the work. There are 2 figures, 1 table, and 9 references: 8 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Institut prikladnoy geofiziki Akademii nauk SSSR (Institute of Applied Geophysics of the Academy of Sciences USSR)

21973

S/020/61/137/005/016/026
B104/B214

9,9100 also 1046
26.1531

AUTHOR: Istomin, V. G.

TITLE: Nitrogen ions in the upper atmosphere of the earth and the night ionization in the E-region

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 5, 1961, 1102-1105

TEXT: The present paper gives a report on the mass spectrometric measurements carried out with the help of rockets and the third Soviet satellite during the years 1958-1960. Particular attention is given to the distribution of the molecular and the atomic nitrogen obtained by those measurements. For this purpose, radio-frequency mass spectrometers of the types РМС-1 (RMS-1) and МХ-6403 (MKh-6403) were used. These were placed in a non-oriented container separated from the rocket. In the region of altitudes of 100-160 km the sensitivity of the mass spectrometer depended on the orientation since its velocity was then comparable to the mean thermal velocity of the ions. For this reason, only those experiments could be evaluated for the determination of the

Card 1/A3

Nitrogen ions in the upper ...

distribution of N_2^+ ions which were carried out in rockets started on August 2, 1958, and June 15, 1960, and the third Soviet satellite (May, 1958). The following assumptions were made for the evaluation of the data: The sum of the concentration of the positive ions is equal to the concentration of the electrons; the sum of the amplitudes of the ion peaks in the mass spectrogram is proportional to the total concentration of the positive ions; the ratio of the amplitudes of the ion peaks in the spectrum is equal to the ratio of the concentrations of the ions in the atmosphere. The electron concentration was determined by an ultra-short wave radio-interferometer. The results are shown graphically in Fig. 1. An interesting peculiarity in the distribution of the N_2^+ ions is discussed; it is characteristic of the nitrogen-oxygen atmosphere of the earth (NO^+, O_2^+, O^+, N^+). In the E region, at an altitude of 100-120 km, there exists a second, and essentially thinner, layer with a concentration of N_2^+ ions equal to that of the layer in the F region. It is established that the origin of the ionization of the molecular

Card 2/3

ISTOMIN, V. G.

"Ions of Extra-Terrestrial Origin in the Earth Ionosphere"

Soviet Papers Presented at Plenary Meetings of Committee on Space Research (COSPAR) and Third International Space Science Symposium, Washington, D. C., 23 Apr - 9 May 62.

ISTOMIN, V. G., POKHUNKOV, A. A.

"Mass-Spectrometer Measurements of the Atmosphere Composition in the USSR"

Soviet Papers Presented at Plenary Meetings of Committee on Space Research (COSPAR) and Third International Space Science Symposium, Washington, D. C., 23 Apr - 9 May 62.

ACCESSION NR: AP4003734 S/0293/63/001/002/0261/0266

AUTHOR: Istomin, V. G.

TITLE: On the detection in the upper atmosphere of O^+ ions with energy exceeding thermal energy

SOURCE: Kosmicheskiye issledovaniya, v. 1, no. 2, 1963, 261-266

TOPIC TAGS: upper atmosphere, atmospheric composition, F2 region, VGAS station, atmospheric ion component, atmospheric atomic oxygen, ionospheric structure, photoionization, O sup + ion, atmospheric thermal radiation

ABSTRACT: Rocket measurements of the ionic composition of the atmosphere were conducted on 18 October 1962 at 150—508 km on both the ascending and descending branches of the trajectory. An MKh-6403 radio frequency mass spectrometer mounted in a spherical container (a VGAS upper-level automatic station) was used for measurements. The container was oriented so that the entrance aperture of the spectrometer was disposed along the velocity vector with the "molecular

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ACCESSION NR: AP4003734

shadow" below. On the descending branch of the trajectory at a height of 250 km, a significant number of O^+ ions were detected, indicating that the velocities of the O^+ ions—the chief component of F2 region ionization—were considerably greater than the thermal velocities of the neutral components of the atmosphere. This effect may be interpreted as indicative of the presence of either directed drifts of O^+ ions (horizontally or vertically) with velocities of the order of 10^5 cm/sec or high velocities of chaotic motion of the O^+ ions. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 14May63 DATE ACQ: 26Dec63 ENCL: 00

SUB CODE: AS NO REF SOV: 003 OTHER: 005

Card 2/2

ISTOMIN, V. G.

Dissertation defended for the degree of Doctor of Physicomathematical Sciences at the Joint Scientific Council of the Geophysical Institute of the Academy of Sciences USSR--Earth Physics, Atmospheric Physics, and Applied Geophsics in 1962:

"Mass Spectrometric Investigations of the Composition of the Earth's Ionosphere."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

L 2966-66 EWT(d)/FSS-2/EWT(1)/FS(v)-3/EPA(sp)-2/EEC(k)-2/FCC/EWA(d)/EWA(t)
ACCESSION NR: AT5023582 AST/TT/GS/GW UR/0000/65/000/000/0192/0202

AUTHOR: Istomin, V. G.

56
13+1

TITLE: Composition of the outer ionosphere according to measurement data of the Elektron satellites

SOURCE: Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 192-202

TOPIC TAGS: instrumentation satellite, satellite data analysis, spaceborne ionization measurement, ionosphere, ion concentration, RF spectrometer/Elektron 2 satellite, MKh6405 RF spectrometer

ABSTRACT: Measurements of the ion composition of the outer ionosphere made in 1964 by Elektron-2 are discussed. The Bennett type MKh-6405 rf mass spectrometer was used in the measurements. Data were collected mostly in the latitude interval from 10° to 61° N during the day and transmitted immediately to processing stations on the ground. Only spectra obtained at the optimum orientation of the spectrometers relative to the satellite velocity vector were recorded. The maximum height at

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L 2966-66

ACCESSION NR: AT5023582

which measurements were made was 2750 km. Fig. 1 of the Enclosure shows typical currents of ionospheric components hydrogen, helium, nitrogen and oxygen, recorded by Elektron-2 on 21 February 1964. Periodic variations of peak amplitudes in the spectra were caused by changes of the incidence angle of the spectrometer tube due to satellite rotation. The braking potential of H^+ ions on the satellite moving with a velocity of 10 km/sec amounted to about 0.5 v. Fig. 2 shows changes in the relative concentration of ion components in relation to altitude. Despite the considerable scattering of points, Fig. 2 shows basic regularities in the variations of ionospheric composition with height; e.g., O^+ and H^+ ions appear at all heights. On the basis of Fig. 2, a diagram of the composition of the outer ionosphere was constructed (Fig. 3). The results obtained with Elektron-2 differ basically from other findings; e.g., He^+ ions do not appear to be the predominant component of the ionosphere at any height. With the increase of height the "oxygenic" ionosphere passes directly into the "hydrogenic," the so-called protonosphere. Orig. art. has: 10 figures, 6 formulas, and 1 table. [JP]

ASSOCIATION: none

SUBMITTED: 02Sep65 ENCL: 03 SUB CODE: ES,SV

NO REF SOV: 003 OTHER: 004 ATD PRESS: 4109

Card 2/5

L 2966-66

ACCESSION NR: AT5023582

ENCLOSURE: 01

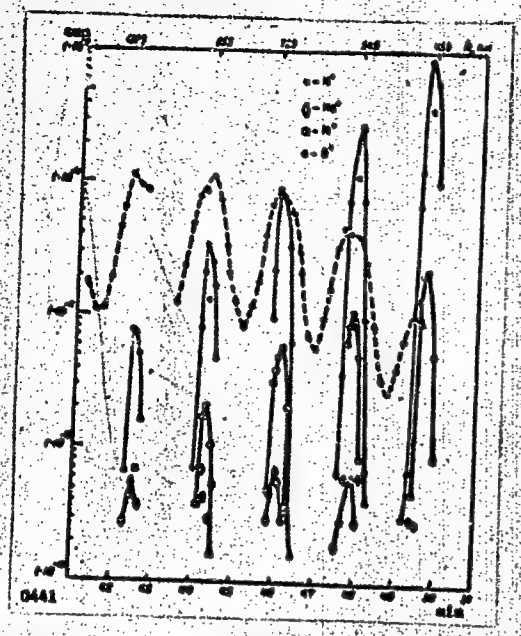

Fig. 1. Ion currents of ionospheric components recorded by Elektron 2 (21 Feb 64, from 0441 to 0451 hours)

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L 2966-66

ACCESSION NR: AT5023582

ENCLOSURE: 02

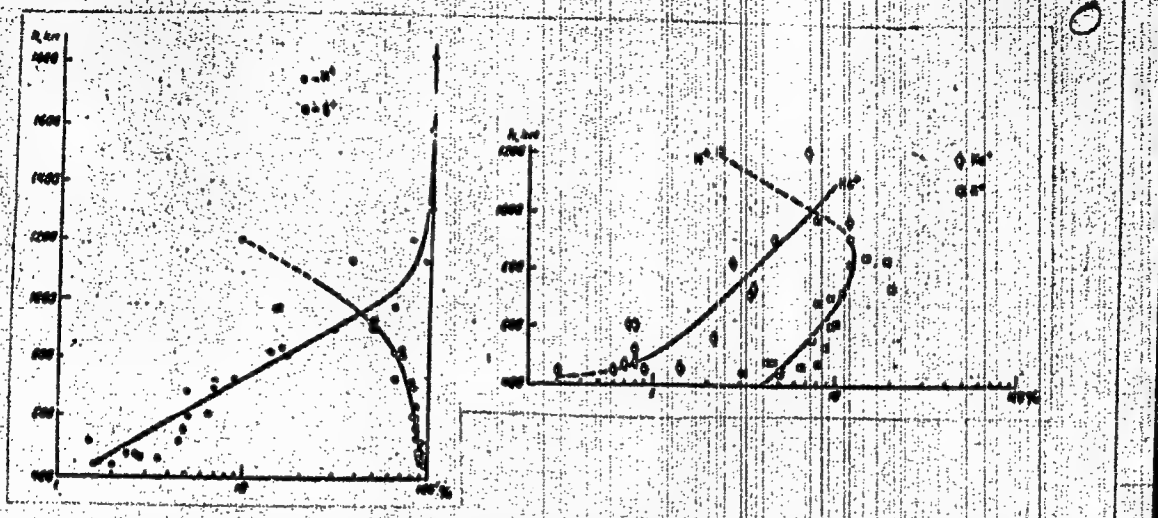

Fig. 2. Relative concentration of ion components as a function of height (10-16 Feb 64, 1400—1900 hours local time)

Card 4/5

L 2966-66

ACCESSION NR: AT5023582

ENCLOSURE: 03

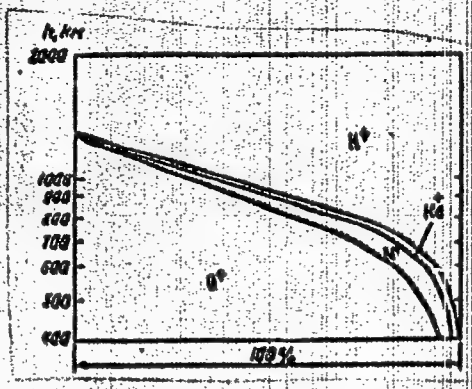

Fig. 3. Diagram of ion composition of outer ionosphere based on Fig. 2

BVK

Card 5/5

L 5041-66 FSS-2/EWT(l)/FS(v)-3/FCC/EWA(h)/ETC(m) IJP(c) TT/WW/GW

ACC NR: AP5026057 SOURCE CODE: UR/0293/65/003/005/0768/0781

AUTHOR: Zarkhin, B. I.; Istomin, V. G.; Rafal'son, A. E.; Slutskiy, M. Ye.

ORG: none

TITLE: Radio frequency mass spectrometer for the Electron satellites

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 5, 1965, 768-781

TOPIC TAGS: spectrometer, mass spectrometer, satellite/Electron satellite

ABSTRACT: Mass spectrometer data on the ionosphere has to date been obtained mostly at limited altitudes and for constituents with low mass numbers. The Electron satellites have been equipped with new rf mass spectrometers in order to achieve a more complete analysis of particles at altitudes above 1000 km than has yet been reported. The spectrometer, designated MKh-6405, is installed in slightly differing forms on the Electron satellites and is capable of discriminating ionic or neutral particles up to a mass number of 34. An overall view is shown in Fig. 1. An ion source is included for initial calibration. For this purpose, the analyzer is filled with a control mixture of 35% H_2, 35% He, 25% Ne, and 5% Ar at a total pressure of 1×10^{-5} mm Hg. A low-energy electron gun provides the desired ionization of the control mixture.

Card 1/5 UDC: 621.384.8:525.7

L 5041-66

ACC NR: AP5026057

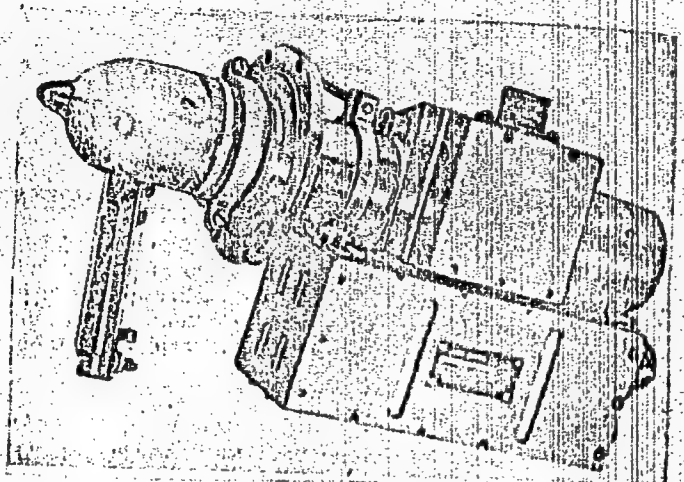

Fig. 1. Overall view of the MKh-6405

In operation, the analyzer envelope is punctured on in-flight command, opening it to the atmosphere. The main features of the analyzer portion are shown in Fig. 2, including the

Card 2/5

L 5041-66

ACC NR: AP5026057

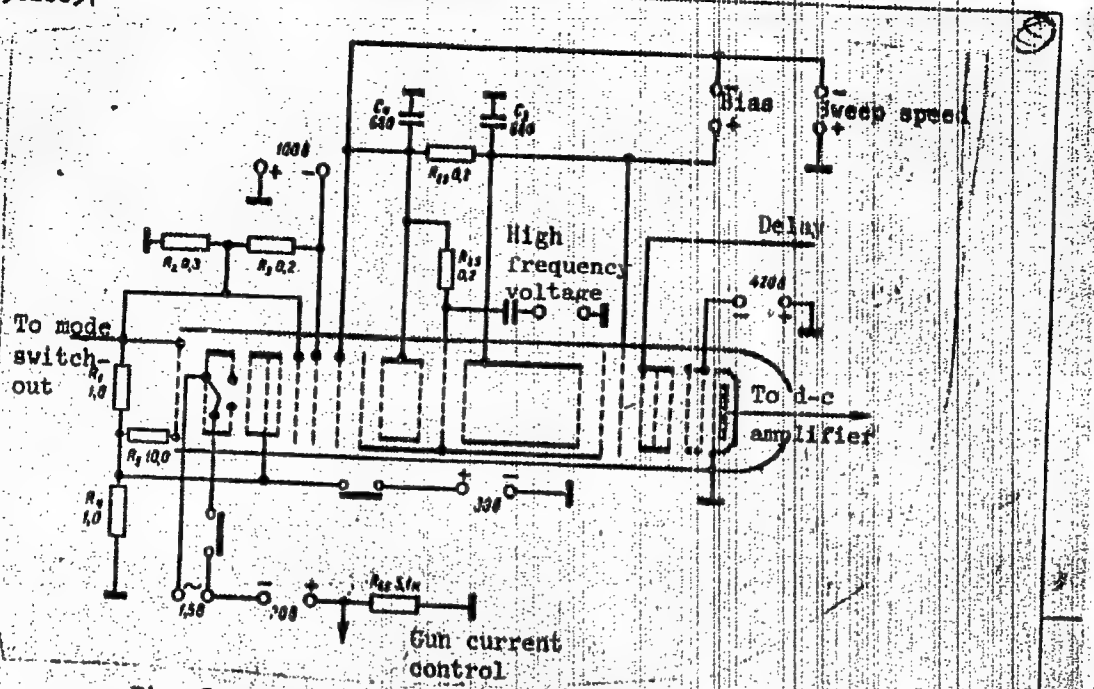

Fig. 2. Analyzer section of the MKh-6405

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electron gun and accelerating grids. For ion analysis, the gun is switched off, and a potential of -60 v is applied to the input grids; for neutral particle analysis, a potential of +30 v is applied to the grids, thus excluding atmospheric ions. The electronic subassemblies which generate the mass discriminating modes for the analyzer are described; these include an ion current amplifier, high-frequency oscillator, saw-tooth sweep generator, switching unit, and a stabilized power supply. Both transistors and ruggedized monolithic subminiature tubes are used. The ion current amplifier provides outputs in three sensitivities, in the ratio of 0.08:1:10, to telemetry channels. Other pertinent specifications of the spectrometer and its analyzer portion are given in the accompanying table.

Spectrometer:

- Mass ranges, 1—2 and 4—34 amu
- Detection sensitivity, average mass ion, 10 ions/cm^3
- Duration of mass range sweep, 3 sec
- Power drain, ion analysis mode, 3 w
- Weight, 2 kg

Analyzer:

- Number of selector stages, 3
- Number of cycles in the stages, 2—7
- Grid spacing, 4 mm
- Grid mesh, 0.4 mm
- Diameter of input port, 25 mm

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ACC NR: AP5026057

Frequency for the 1—2 amu range, 16.3 Mc
Frequency for the 4—34 amu range, 4.08 Mc
Diameter, 50 mm
Length, 300 mm
Weight, 0.8 kg

Orig. art. has: 2 tables and 11 figures.

[SH]

SUB CODE: OP, SV/ SUBM DATE: 02Jun64/ ORIG REF: 012/ OTH REF: 004/ ATD PRESS: 4132

GC

Card 5/5

ISTOMIN, V.I.

Desorber and boiler automation in a gas-drying unit. Gaz. prom. 6 no.11:48-50 '61. (MIRA 15:1)

(Gas, Natural--Pipelines)

ISTOMIN, V.I.; KOLYAGINA, A.A.

Moisture meters. Bum.i der.prom. no.4:61-62 O-D '62.
(MIRA 15:12)
(Moisture--Measurement)

ISTOMIN, V.I.

Moisture measuring instruments. Avtom.i prib. no.4:74-85 O-D '62. (MIRA 16:1)

1. Institut ispol'zovaniya gaza AN UkrSSR.
(Hygrometry)

ISTOMIN, V.I. (Kiyev)

Dehydration of natural gas and requirements of automatic control systems. Avtomatyka 8 no.3:33-40 '63. (MIRA 16:7)
(Gas, Natural--Drying)

ISTOMIN, V.I.

Methods and instruments for measurement and control of moisture (survey). Zav.lab. 29 no.5:568-574 '63. (MIRA 16:5)
(Hydrometer) (Production control)

ISTOMIN, V. I.

Electrolytic moisture gauge for gases. Gaz. delo no. 11: 26-30 '63. (MIRA 17:5)

1. Institut ispol'zovaniya gaza AN UkrSSR.

ISTOMIN, V.I.

Automatic control of the moisture of air by a heating hygrometer.
Bum. i der. prom. no.3:9-12 Jl-S '63. (MIRA 17:2)

1. Institut gaza AN UkrSSR.

ISTOMIN, V.I. (Kiyev)

Study of a control process of a distillation column.
Avtomatyka 9 no.1:69-77 '64. (MIRA 17:3)

ISTOMIN, V.I.

Automatic control of the drying of natural gas. Gaz. prom. 9 no.2:38-41 '64. (MIRA 17:12)

ISTOMIN, V.I.

Moisture coulometer for gas. Neft. i gaz. prom. no.1:57-59 Ja-Mr '64. (MIRA 18:2)

ISTOMIN, V. N.

Cand Tec Sci, Diss -- "Increasing the reliability and service life of mining machines". Moscow, 1961. 24 pp, 21 cm (Min of Higher and Inter Spec Educ RSFSR. Moscow Mining Inst imeni I. V. Stalin), 250 copies, Not for sale (KL, No 9, 1961, p 182, No 24342). /61-55863/

DOKUKIN, Aleksandr Viktorovich; ISTOMIN, Vladimir Nikolayevich; TISHCHENKO, Lyudmila Igorevna; ASTAKHOV, A.V., red. izd-va; BOLDYREVA, Z.A., tekhn. red.; SHKLYAR, S.Ya., tekhn. red.

[Wear, lubrication, and repair of stoping machinery] Iznos, smazka i remont zaboinykh mashin. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1961. 167 p. (MIRA 15:4)

(Mining machinery--Maintenance and repair)

ISTOMIN, V.N., kand.tekhn.nauk

Problems in starting and preventing overloading of mining machinery. Mekh. i avtom. v gor. prom. no.3:107-123 '63. (MIRA 16:10)

ISTOMIN, V.N., kand.tekhn.nauk

Methods and means of reducing the dynamic loads in mining machines with chain working parts. Mekh. i avtom. v gor. prom. no.3:151-154 '63. (MIRA 16:10)

ISTOMIN, V.V.

Some results of restorative therapy for invalids with injuries of the central nervous system during a ten-year period. Vrach. delo no.2:177-179 F '59. (MIRA 12:6)

1. Kiyevskiy respublikanskiy psikhonevrologicheskiy gospital' dlya invalidov Otechestvennoy voyny.
(NERVOUS SYSTEM--WOUNDS AND INJURIES)

ISTOMIN, V.V. (Kiyev)

Medical expertise of working capacity in arachnitis of the brain. Vrach. delo no.11:69-74 N'63 (MIRA 16:12)

ISTOMIN, V.V., gornyy inzh.

Determining the bearing capacity of the foundations of recumbent slopes. Nauch. trudy Mosk. inst. radioelek. i gor. elektromekh. no.46:192-198 '62. (MIRA 17:1)

RZHEVSKIY, Vladimir Vasil'yevich, prof., doktor tekhn. nauk; ISTOMIN, Viktor Vladimirovich, gornyy inzh.; YAMSHCHIKOV, Valeriy Sergeyevich, gornyy inzh.; Prinimali uchastiye: YASTREBINSKIY, M.A., gornyy inzh.; LEBEDKOVA, A.A., gornyy inzh.; OVCHINNIKOV, V.A., gornyy inzh.

[Technology and the overall mechanization of the open pit mining of coal, ore, and rock products] Tekhnologiia i kompleksnaia mekhanizatsiia otkrytoi dobychi uglia, rud i nerudnykh iskopaemykh. Moskva, Mosk. in-t radioelektroniki i gornoi elektromekhaniki. No.6. Pt.1. 1963. 151 p. (MIRA 17:8)

KOROBOV, S.D., gornyy inzh.; ISTOMIN, V.V., gornyy inzh.

All-Union Scientific and Technical Conference on the Use of Electronic Computers in Mining. Gor. zhur., no.2:76-77 F '65. (MIRA 18:4)

SOV/137-59-3-5858

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 131 (USSR)

AUTHORS: Istomin, V. Ya., Yakubovich, N. S.

TITLE: Semiautomatic Welding in the Manufacture of Road-building Equipment (Poluavtomaticheskaya svarka v dorozhnom mashinostroyenii)

PERIODICAL: Byul. tekhn.-ekon. inform. Sovnarkhoz, Bryanskogo ekon. adm. r-na, 1958, Nr 1, pp 24-25

ABSTRACT: Automatic and semiautomatic welding is employed at the Bryansk road-building equipment plant in the manufacture of frames, balancing beams, scraper blades, and other components of self-propelled road graders. The adoption of the new manufacturing technology improved the quality and the appearance of the finished units and resulted in considerable economy.

V. V.

Card 1/1

MOISEYENKO, U.I.; ISTOMIN, V.Ye.

Study of the electric conductivity of rocks at high temperatures. Geol i geofiz. no.8:106-109 '63. (MIRA 16:10)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

(Rocks--Electric properties)

ACCESSION NR: AP4012088 S/0020/64/154/002/0366/0368

AUTHORS: Moiseyenko, U. I.; Istomin, V. Ye.; Ushakov, G. D.

TITLE: Influence of unilateral pressure on electric resistivity of rocks

SOURCE: AN SSSR. Doklady*, v. 154, no. 2, 1964, 366-368

TOPIC TAGS: electric rock resistivity, electroresistivity under pressure, rock electrical conductivity

ABSTRACT: Electric conductivity of rocks under pressures corresponding those at great depths is scantily studied and therefore the authors investigated the electric resistivity of olivenite, marble, serpentinite, dunite, basalt, pyroxenite and peridotite under a unitalteral pressure of 20000 kG/cm^2. Under unilateral pressure the specific resistivity decreases, reaches a minimum typical of each rock type, the greatest change being observed for marble, serpentinite and basalt, the smallest for peridotite and pyroxenite. Further increase in pressure reverses the trend and increases the resistivity. These data can be useful for studies of rock deformations

Card 1/2

ACCESSION NR: AP4012088

both in natural and experimental conditions especially with regard to changes in electric resistivity of rocks at different depths from the crust. Orig. art. has: 1 Figure,

ASSOCIATION: Institut geologii i fiziki Sibirskogo otdelenya AN SSSR (Institute of geology and physics of the Siberian Branch AN SSSR)

SUBMITTED: 07Jun63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: PH NR REF SOV: 003 OTHER: 001

Card 2/2

MOISEYENKO, U.I.; ISTOMIN, V.Ye.

Electric resistance of rocks having high temperature and pressure. Dokl. AN SSSR 154 no.4:846-847 F '64.
(MIRA 17:3)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR. Predstavleno akademikom V.S. Sobolevym.

ACCESSION NR: AP4009282 S/0125/64/000/001/0025/0027

AUTHOR: Istomin, Ye. I.; Gumenyuk, Yu. P.

TITLE: Welding vacuum-arc-melted and electron-beam-melted columbium

SOURCE: Avtomaticheskaya svarka, no. 1, 1964, 25-27

TOPIC TAGS: welding columbium, vacuum arc melted columbium, electron beam melted columbium, columbium weldability, argon arc welding, electron beam welding, columbium weld microstructure

ABSTRACT: An experimental study of the weldability of columbium and suitable welding methods is reported. Specimens 1-mm thick were butt-welded by an electron beam in a 2×10^{-5}-torr vacuum with 45 ma at 20 kv, at a rate of 30 m/hr, weld width 1.5-1.8 mm. Other 1-mm thick specimens were argon-arc butt-welded with 140 amp, 10 v, 35 m/hr, weld width 2.5-3.0 mm, by a 3-mm tungsten electrode. Both welds had a neat appearance, without undercuts or

Card 1/2

ACCESSION NR: AP4009282

oxidation stains. It was found that both types of columbium can be successfully welded by either electron-beam or argon-arc welding; the strength of the vacuum-arc-melted columbium exceeds that of the electron-beam columbium by 60 or 70 HV. Sheet vacuum-arc columbium should preferably be welded by the electron-beam method since argon-arc welding increases the impurity content and sharply reduces plasticity. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona AN UkrSSR (Institute of Electric Welding, AN UkrSSR)

SUBMITTED: 04Feb63 DATE ACQ: 07Feb64 ENCL: 00

SUB CODE: ML NO REF SOV: 000 OTHER: 000

Card 2/2

ISTOMIN, Yu., aspirant

International regulation of the annual leave of seamen. Mor. flot 25 no.5:40-41 My '65. (MIRA 18:5)

1. Leningradskoye vysshaya inzhenernoye morekhodnoye uchilishche imeni admirala S.O.Makarova.

Istomina, A.G.

AUTHORS: Istomina, A.G., Keirim-Markus, I.B. 89-1-12/18

TITLE: Experiments for the Determination of Maximum Acceptability of Thermal Neutrons (Opyty k obosnovaniyu predel'no dopustimykh potokov teplovykh neytronov)

PERIODICAL: Physics and Thermotechniques of Reactors (Fizika i teplotekhnika reaktorov), Supplement Nr. 1 to Atomnaya energiya, 1958, (USSR)

ABSTRACT: The distribution of protons and γ-doses was determined experimentally on a paraffin model. The protons and γ-doses are created by the capture of thermal neutrons by the human organism [$N^{14}(n,p)C^{14}$ and $H^1(n,\gamma)H^2$]. It was shown that if the relative biological effectiveness is assumed to be equal to 10, the maximum dose efficiency on the surface of the body occurs where the share of proton components predominates. Within the organ γ-radiation is especially effective.
If the flux on the surface of the body amounts to 1n/cm^2.sec, an average dose effect of $1{,}05.10^{-10}$ rep/sec or $2{,}0.10^{-10}$ BER/sec (biological X-ray equivalent) is produced in the human organs. The maximum dose efficiency on the surface of the body is $2{,}8.10^{-10}$ BER/sec. Herefrom there follows as the maximum permissible neutron flux on the human body in the course of eight working

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hours 6200 n/cm^2.sec.
The relative biological effectiveness of thermal neutrons is 2 - 3, but not 5 as hitherto assumed. Calculation of the maximum permissible thermal neutron flux in the air results in a value of 1250 n/cm^2.sec for eight working hours. This number confirms the standards at present in force. There are 5 figures and 10 references, 7 of which are Slavic.

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Card 2/2 Neutrons-Physiological effects

ISTOMINA, A.G., KEIRIM-MARKUS, I.B.

Experimental equipment for exposing animals to neutron (ENO-1) currents. Report No.1:[with summary in English]. Med.rad. 3 no.3 51-61 My-Je '58 (MIRA 11:7)

(RADIOLOGY, appar. & instruments,
appliance for irradiation of animals by neutron fluxes (Rus))

ISTOMINA, A.G.; KSIRIM-MARKUS, I.B.

Experimental appliance for irradiating animals with streams of neurtons (EKO-1). Report No.2. Med.rad. 3 no.4:69-75 Jl-Ag '58. (MIRA 12:3)

(NEUTRONS, effects,
irradiation of exper. animals, appar. (Rus))

ISTOMINA, A.G.

69-3-18/30

AUTHORS: Istomina, A. G., Keirim-Markus, I. B.

TITLE: The Determination of the Neutron Dose of Thermal Neutrons by Measuring the Exterior γ-Radiation (Opredeleniye dozy vozdeystviya teplovykh neytronov po vneshnemu γ-izlucheniyu)

PERIODICAL: Atomnaya Energiya, 1958, Vol. 4, Nr 3, pp. 302-302 (USSR)

ABSTRACT: In order to be able to determine quickly the neutron dose which the human body has taken up, the investigation has been based on the following reflection: After an irradiation by thermal neutrons mainly Na^{24} can be found in the human body. The short-life Cl^{38} has already faded away after 2 - 3 hours. Other activities hardly develop. For measuring a paraffin phantom of the human body was used into which Na had been inserted. A neutron flux of 5000 n/cm^2.sec (reference 2) was assumed as maximum permissible daily dose of thermal neutrons in the irradiation of the human body. Measurings by different Russian apparatus showed that they can unconditionally be used for the mentioned purpose. A concentration of the activity at the surface of the phan-

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The Determination of the Neutron Dose of Thermal Neutrons by Measuring the Exterior γ-Radiation

tom causes an increase of the dose of the exterior γ-radiation by 15 %.

SUBMITTED: October 21, 1957

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1. Neutrons-Dosage determination 2. Thermal neutrons

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ISTOMINA, A.G.

21(4); 17(0) PHASE I BOOK EXPLOITATION SOV/2808

International Conference on the Peaceful Uses of Atomic Energy. 2d, Geneva, 1958

Doklady sovetskikh uchenykh; radiobiologiya i radiatsionnaya meditsina (Reports of Soviet Scientists; Radiobiology and Radiation Medicine) Moscow, Izd-vo Glav. upr. po ispol'zovaniyu atomnoy energii pri Sovete Ministrov SSSR, 1959. 429 p. 8,000 copies printed. (Series: Its: Trudy, tom 5)

General Ed.: A.V. Lebedinskiy, Corresponding Member, USSR Academy of Medical Sciences; Ed.: Z.S. Shirokova; Tech. Ed.: Ye.I. Mazel'.

PURPOSE: This book is intended for physicians, scientists, and engineers as well as for professors and students at vuzes where radiobiology and radiation medicine are taught.

COVERAGE: This is Volume 5 of a 6-volume set of reports delivered by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy, held on September 1-13, 1958, in Geneva. Volume 5 contains 32 reports edited by Candidates of Medical Sciences S.V. Levinskiy and V.V. Bedov. The reports cover problems of the biological effects of ionizing radiation, future consequences of radiation in small doses, genetic effects of radiation, treatment of radiation sickness, uses of radioactive isotopes in medical and biological research, uses of atomic energy for diagnostic and therapeutic purposes, soil absorption of uranium fission products, their intake by plants, and their storage in plants and foodstuffs. References accompany each report.

Reports of Soviet Scientists (Cont.) SOV/2808

[illegible], I.P. The Acetylating Function of the Coenzyme A System in Radiation Sickness (Report No. 2039) 160

[illegible], R.D. Sal'tsova, G.A. Medvedeva, N.A. Pomoshchnikova, L.A. Galivorskaya, and M.I. Shal'nova. Effect of Ionizing Radiation and of Radiomimetic Substances on the Microbe Cell (Report No. 2320) 167

[illegible], and V.Y. Shikhodyrov. Local Tests to Show the State of [illegible] and Autosensitization of an Irradiated Organism (Report No. 2073) 180

[illegible], A.A., F.R. Vinograd-Finkel', [illegible], [illegible], [illegible], [illegible], G.M. Abdullayev, and [illegible]. Experience in Treating Radiation Sickness With Leukocyte and Thrombocyte Substance (Report No. 2058) 188

[illegible], and I.B. Keirim-Markus. Experiments to Determine Maximum Permissible Thermal Neutron Flux (Report No. 2076) 196

[illegible], D.R., and T.I. [illegible]. Isotopic Method in Studying the Hormone Effect on Metabolism in Osseous Tissue (Report No. 2072) 205

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2,

S/081/61/000/024/026/086
B138/3102

AUTHORS: Zav'yalov, A. P., Istomina, A. G., Markelov, V. V.

TITLE: Apparatus for the measurement of tritium oxides

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1961, 172, abstract 24Ye45 (Med. radiologiya, v. 5, no. 12, 1960, 57 - 60)

TEXT: A description is given of a scintillation device based on standard apparatus, by means of which the specific activity of tritium oxides can be recorded up to $1 \cdot 10^{-9}$ counts per ml, and, with some modification, up to $\sim 1 \cdot 10^{-10}$ counts per ml. A block diagram is given and the transmitting element is described. Specimens can be exchanged very rapidly and a minimum amount of time is required to restore the photomultiplier to its working level. The scintillator is a solution of 4 - 5 g paraterphenyl and 0.05 - 0.01 g ПОПОП (POPOP) (1.4-di-[2-(5-oxazole)]-benzene) in 1 l scintillation toluene or scintillation dioxane. The sensitivity of the device and methods of increasing it are considered. [Abstracter's note: Complete translation.]

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AUTHORS: Istomina, A. G., Keirim-Markus, I. B.

TITLE: Maximum Permissible Doses of Intermediate Energy Neutrons and Their Measurement

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 3, pp 239-247 (USSR)

ABSTRACT: The authors give a summary of effects due to neutrons of intermediate energy (0.2 ev to 1 mev) as described in scientific literature. They note that, as a rule, the intermediate electrons are a result of slowing down of fast neutrons, and in weakly absorbing media their characteristic spectrum $\varphi(E)dE$ is proportional to dE/E. These neutrons are not easy to measure, and this is one of the reasons that up to the present time they are not taken into account in dosimetric practice although they often constitute a substantial part of the total neutron flux. The contribution to the absorbed dose from the intermediate neutrons is also increased due

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to the fact that intermediate neutrons affect the organism more strongly than the thermal ones. P. A. Yampol'skiy, L. A. Chudov, G. G. Petrov, and A. M. Kogan of Institute of Chemical Physics AS USSR (Institut khimicheskoy fiziki (IKhF) AN SSSR) computed in 1956 the absorbed doses of neutron flux incident on a half-space filled with paraffin without taking into account absorption by heavy nuclei. They computed the maximum permissible absorption dose assuming the relative biological efficiency (RBE) for protons to be 2, 4.5, and 10. Results are on Fig. 2. The authors point out, however, that the maximum absorbed dose does not always determine the biological effect of the radiation. The RBE is different for various kinds of exposure and depends on the reaction of the organism to radiations which may be in the form of prolonged weak doses, may vary at various depths of the tissue, or may consist of short but very strong exposures. The authors computed the